

**Louisiana Department of Environmental Quality (LDEQ)  
Office of Environmental Services**

**STATEMENT OF BASIS**

**ACADIA POWER STATION  
ACADIA POWER PARTNERS, L.L.C.**

**Eunice, Acadia Parish, Louisiana**

**Agency Interest Number: 83623**

**Activity Numbers: PER20050001, PER20050002, PER20070001, & PER20070002**

**Draft Permits: 0040-00105-V2, 0040-00105-IV1, PSD-LA-645(M-2), & 0040-00105-IR0**

**I. APPLICANT:**

**Company:**

Acadia Power Partners, LLC  
30385 Crowley-Eunice Hwy  
Eunice, LA 70535

**Facility:**

Acadia Power Station  
30385 Crowley-Eunice Hwy, Eunice, Acadia Parish, Louisiana  
Approximate UTM coordinates are 556.4 kilometers East and 3,366.4 kilometers North,  
Zone 15

**II. FACILITY AND CURRENT PERMIT STATUS:**

Acadia Power Partners, LLC is the owner of the Acadia Power Station, an existing combined-cycle turbine power plant. The facility is operated by CLECO Generation Services, LLC. The Acadia Power Station currently operates under Permit No. 0040-00105-V1, issued January 31, 2002, Permit No. 0040-105-IV, issued July 13, 2000, and PSD-LA-645(M-1), issued January 31, 2002.

The facility submitted a timely application for a Part 70 permit renewal/minor modification, Acid Rain permit renewal, Prevention of Significant Deterioration (PSD) minor modification, and Clean Air Interstate Rule (CAIR) permit.

The application for a Part 70 permit renewal/modification included the following sources:

Permit #	Units or Sources	
0040-00105-V2	UNF 01	Facility Wide
	EQT 05	1-99 Combustion Turbine No. 1
	EQT 06	2-99 Combustion Turbine No. 2
	EQT 07	3-99 Combustion Turbine No. 3
	EQT 08	4-99 Combustion Turbine No. 4
	EQT 09	9-99 Cooling Tower No. 1
	EQT 10	10-99 Cooling Tower No. 2
	EQT 11	5-99 HRSG Duct Burner No. 1
	EQT 12	6-99 HRSG Duct Burner No. 2
	EQT 13	7-99 HRSG Duct Burner No. 3
	EQT 14	8-99 HRSG Duct Burner No. 4

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<b>Permit #</b>	<b>Units or Sources</b>	
(cont)	FUG 01	5-98 Fugitive Emissions
	GRP 04	Acid Rain Affected Sources
	PCS 06	1-05 Combined Cycle No. 1
	PCS 07	2-05 Combined Cycle No. 2
	PCS 08	3-05 Combined Cycle No. 3
	PCS 09	4-05 Combined Cycle No. 4

### III. PROPOSED PERMIT / PROJECT INFORMATION:

#### Application

A permit application and Emission Inventory Questionnaire were submitted by Acadia Power Partners, LLC on January 12, 2005 requesting Part 70 operating permit renewal/modification and Acid Rain permit renewals. The company submitted a PSD permit modification request dated June 28, 2006 and a CAIR permit application dated June 28, 2007. Additional information dated June 28, 2006, February 8, 2007, and December 20, 2007 was also received.

#### Project

The Acadia Power Station is a 1,000 MW combined-cycle turbine power plant. The facility consists of four combustion gas turbines, four heat recovery steam generators (HRSG), four duct burners, two steam turbines, two cooling towers, power augmentation (PAG), and auxiliary equipment. The gas turbine essentially consists of three main components: Compressor, combustor, and power turbine. The hot gases (>2,000°F) from the combustion of natural gas are diluted with additional air from the compressor section and directed to the power turbine section. The energy from the hot exhaust gases expands in the power turbine section to generate electricity. The residual energy in the exhaust gas from combustion turbines recovered at HRSG where steam is produced. The steam is then supplied to the steam turbine generator to produce electricity. Selective catalytic reduction (SCR) is used to control NO<sub>x</sub> emissions.

Power Augmentation (PAG) may be utilized when the unit is not performing at maximum output due to higher ambient temperature. PAG is accomplished by injecting steam into the combustion zone of the turbine. This steam adds mass to the flow through the turbine, thus increasing power production. The duct burner is used to provide supplemental firing capability.

Startup of the turbine usually requires a maximum of 60 - 120 minutes from the initial firing until the turbine unit reaches steady state normal condition. Turbine shutdown generally requires a maximum of 25 - 50 minutes from lowering the system output under normal operation until the turbine combustion section is secured (no flame).

Acadia Power Partners proposes to make the following changes to the Acadia Power Station:

- Include Start Up/Shut Down emissions and
- Update the list of insignificant activities.

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**Proposed Permits**

Permit no. 0040-00105-V2 will renew and modify the current Part 70 permit for the Acadia Power Station.

Permit no. 0040-00105-IV1 will renew the current Acid Rain permit for the facility.

Permit no. PSD-LA-645(M-2) will modify PSD-LA-645(M-1), the current PSD permit for the facility.

Permit no. 0040-00105-IR0 will be the initial CAIR permit for the facility.

**Permitted Air Emissions**

Estimated changes in permitted emissions in tons per year are as follows:

<b>Pollutant</b>	<b>Before</b>	<b>After</b>	<b>Change</b>
PM <sub>10</sub>	352.20	352.20	0.00
SO <sub>2</sub>	21.00	21.84	+0.84
NO <sub>x</sub>	600.00	600.00	0.00
CO	1,472.00	1,472.00	0.00
VOC *	97.00	97.65	+0.65

<b>* VOC LAC 33:III.Chapter 51 Toxic Air Pollutants (TAPs):</b>			
<b>Pollutant</b>	<b>Before</b>	<b>After</b>	<b>Change</b>
Formaldehyde	9.20	9.20	-
<b>Non-VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):</b>			
Ammonia	456.00	455.52	-0.48

#### **IV. REGULATORY ANALYSIS**

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

This permit was reviewed for compliance with 40 CFR 70, the Louisiana Air Quality Regulations, New Source Performance Standards (NSPS), and Prevention of Significant Deterioration (PSD). National Emission Standards for Hazardous Air Pollutants (NESHAP) and do not apply.

This facility is a major source of toxic air pollutants (TAPs), but is exempt from the requirements of LAC 33:III Chapter 51 Subchapter A per LAC 33:III.5105.B.2.

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**Applicability and Exemptions of Selected Subject Items**

ID No:	Requirement	Notes
UNF 01	Control of Emissions of Nitrogen Oxides (NO <sub>x</sub> ) [LAC 33:III.2201.C.15]	EXEMPT. The Acadia Power Station is required to meet more stringent federal requirements and is exempt from LAC 33:III.2201.
	Comprehensive Toxic Air Pollutant Emission Control Program [LAC 33:III.5105.B.2]	EXEMPT. Electric utility steam-generating units are exempt from the requirements of LAC 33:III Chapter 51 Subchapter A.
	Compliance Assurance Monitoring [40 Part 64.2(b)(1)(iii)]	EXEMPT. The Acadia Power Station is subject to Acid Rain requirements.
EQT 05 – 08	New Source Performance Standards for Gas Turbines [NSPS Subpart GG]	<p>Data collected from the continuous emissions monitoring system (CEMS) under the Acid Rain Program (40 CFR 75) shall be used to demonstrate compliance with the NO<sub>x</sub> emission limit in NSPS Subpart GG as described in the permit.</p> <p>It has been determined that the data collection system used for Part 75 monitoring provides all the necessary data to ensure that the facility has complied with the emission limitations in Part 75 and Subpart GG. Per 40 CFR 60.334(h)(4), without submitting a special petition to the Department, Acadia Power Partners may continue monitoring on the current custom fuel monitoring schedule, which allows the facility to waive the requirement for daily monitoring of nitrogen and sulfur content in the fuel being fired in the facility and use fuel supplier certification as a monitoring alternative to demonstrate compliance under 40 CFR 60.334(c).</p>
EQT 05, EQT 06, EQT 07, EQT 08, EQT 11, EQT 12, EQT 13, EQT 14	Emission Standards for Sulfur Dioxide [LAC 33:III.1513.C]	EXEMPT. Because the source is not subject to the limitations of LAC 33:III.1503.C, the permittee shall record and retain at the site sufficient data to show the annual SO <sub>2</sub> emissions from the source.
	Comprehensive Toxic Air Pollutant Emission Control Program [LAC 33:III.5105.B.3]	EXEMPT. Emissions from the combustion of Group I virgin fossil fuels are exempt from the requirements of LAC 33:III Chapter 51 Subchapter A.
EQT 09, EQT 10	NESHAP – National Emission Standards for Hazardous Air Pollutants for Industrial Cooling Towers [40 CFR 63.400(a)]	DOES NOT APPLY. The Acadia Power Station does not use chromium based water treatment chemicals in the cooling water or cooling towers.

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ID No:	Requirement	Notes
PCS 01, PCS 02, PCS 03, PCS 04	Control of Emissions of Nitrogen Oxides (NO <sub>x</sub> ) [LAC 33:III.2201.C.15]	EXEMPT. The Acadia Power Station is required to meet more stringent federal requirements and is exempt from LAC 33:III.2201.
	Comprehensive Toxic Air Pollutant Emission Control Program [LAC 33:III.5105.B.2]	EXEMPT. Electric utility steam-generating units are exempt from the requirements of LAC 33:III Chapter 51 Subchapter A.

**Prevention of Significant Deterioration Applicability**

Acadia Power Partners proposes no physical changes to the Acadia Power Station. However, the proposed PSD modification, PSD-LA-645(M-2), establishes BACT for startup and shutdown operation that was previously not included. BACT during periods of startup and shutdown (defined as <50% turbine load) for combustion turbines 1-99, 2-99, 3-99, and 4-99 was determined to be good design, proper operating and maintenance practices, and the use of clean natural gas.

**Streamlined Equipment Leak Monitoring Program**

There is no equipment leak monitoring program being streamlined at the facility.

**MACT requirements**

Maximum Achievable Control Technology (MACT) requirements are not required for this source because the only individual major Toxic Air Pollutant (TAP) emitted is Ammonia. Ammonia is a Class III TAP and is therefore not subject to MACT requirements under LAC 33:III.5109.A. Also, electric utility steam-generating units are exempt from the requirements of LAC 33: III Chapter 51 Subchapter A according to LAC 33:III.5105.B.2.

**Air Modeling Analysis**

Impact on air quality from the emissions of the proposed unit will be below the National Ambient Air Quality Standards (NAAQS) and the Louisiana Ambient Air Standards (AAS) beyond industrial property. The dispersion modeling is included below.

Dispersion Model(s) Used: AERMOD (Screen)

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Air Quality Standard (NAAQS)
PM <sub>10</sub>	Annual	0.61 ug/m <sup>3</sup>	(50 ug/m <sup>3</sup> )
	24-hour	3.06 ug/m <sup>3</sup>	(150 ug/m <sup>3</sup> )

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**General Condition XVII Activities**

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the proposed permit.

**Insignificant Activities**

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the proposed permit.

**V. PERIODIC MONITORING**

Dry Low NO<sub>x</sub> Burners shall be installed and operated and Selective Catalytic Reduction (SCR) shall be used to maintain maximum NO<sub>x</sub> emissions at 4.5 ppmv on EQT005, 1-99 Combustion Turbine No. 1, EQT006, 2-99 Combustion Turbine No. 2, EQT007, 3-99 Combustion Turbine No. 3, and EQT008, 4-99 Combustion Turbine No. 4. Good design, proper operating and maintenance practices, and the use of clean natural gas to maintain maximum PM/PM<sub>10</sub> at 23 lbs/hr, CO at 25 ppmv, and VOC at 3 ppmv shall be utilized. (Determined as BACT)

Dry Low NO<sub>x</sub> Burners shall be installed and operated and Selective Catalytic Reduction (SCR) shall be used to maintain maximum NO<sub>x</sub> emissions at 0.10 lbs/MM BTU on EQT011, 5-99 HRSG Duct Burner No. 1, EQT012, 6-99 HRSG Duct Burner No. 2, EQT013, 7-99 HRSG Duct Burner No. 3, EQT014, 8-99 HRSG Duct Burner No. 4. Good design, proper operating and maintenance practices, and the use of clean natural gas to maintain maximum PM/PM<sub>10</sub> at 0.01 lbs/MM BTU, CO at 0.08 lbs/MM BTU, and VOC at 0.02 lbs/MM BTU shall be utilized. (Determined as BACT)

A federally enforceable condition requires the facility to limit the total operating time of the four duct burners: EQT011, 5-99 HRSG Duct Burner No. 1, EQT012, 6-99 HRSG Duct Burner No. 2, EQT013, 7-99 HRSG Duct Burner No. 3, EQT014, 8-99 HRSG Duct Burner No. 4, to no more than 6,000 hours per year. The total duct burner operating time shall be recorded each month as well as the total duct burner operating time for the last twelve months. These records shall be kept on-site and available for inspection by the Office of Environmental Compliance, Surveillance Division. Total duct burner operating time above the maximum listed in this specific condition for any twelve consecutive month period shall be a violation of this permit and must be reported to the Office of Environmental Compliance, Enforcement Division. A report showing the total duct burner operating time shall be submitted annually to the Office of Environmental Compliance, Enforcement Division by March 31.

Drift eliminators shall be installed and operated on EQT009, 9-99 Cooling Tower No. 1 and EQT0010, 10-99 Cooling Tower No. 2, to comply with the permitted limits for PM<sub>10</sub>. Good Operating practices shall be applied to limit the quantity of particulate entrained in the cooling tower air stream and the amount of drift loss that occurs from the cooling tower. (Determined as BACT)

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The facility shall continue to use fuel supplier certification of the sulfur content to demonstrate compliance with NSPS Subpart GG, 40 CFR 60.334(c), according to 40 CFR 60.334(h)(4).

A continuous emission monitoring system consisting of a NO<sub>x</sub> pollutant concentration monitor and an O<sub>2</sub> or CO<sub>2</sub> diluent gas monitor to determine NO<sub>x</sub> emissions according to 40 CFR 75.10(a)(2) shall be installed, operated, and maintained on the gas turbines. Total NO<sub>x</sub> emissions, both NO and NO<sub>2</sub>, shall be accounted for either by monitoring for both NO and NO<sub>2</sub> or by monitoring for NO only and adjusting the emissions data to account for NO<sub>2</sub>.

The tests shall be performed on the turbines without the duct burners to obtain the actual emission rates from the gas turbines. The test shall be repeated with both the gas turbines and the duct burners in operation. Emissions from the duct burners are obtained by subtracting the turbine emissions from the total emissions of each generation unit.

A federally enforceable condition requires the facility to demonstrate compliance with the opacity emission limits of this permit by inspecting the combined stacks for Units 1, 2, 3, & 4 for visible emissions on a daily basis. If visible emissions are detected, then, within three (3) working days, a six minute opacity reading shall be conducted in accordance with EPA Reference Method 9. Records of opacity checks - including data and time of the check, emission unit ID, operational status of the emission unit, observed results and conclusion, and any Method 9 results, shall be kept on site and available for inspection by the Office of Environmental Compliance, Surveillance Division.

**VI. Permit Shield**

There is no permit shield.

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## **VII. GLOSSARY**

**Carbon Monoxide (CO)** – A colorless, odorless gas, which is an oxide of carbon.

**Maximum Achievable Control Technology (MACT)** – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

**Hydrogen Disulfide (H<sub>2</sub>S)** – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

**New Source Review (NSR)** – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C (“Prevention of Significant Deterioration of Air Quality”) and D (“Nonattainment New Source Review”).

**Nitrogen Oxides (NO<sub>x</sub>)** – Compounds whose molecules consist of nitrogen and oxygen.

**Organic Compound** – Any compound of carbon and another element. Examples: Methane (CH<sub>4</sub>), Ethane (C<sub>2</sub>H<sub>6</sub>), Carbon Disulfide (CS<sub>2</sub>)

**Part 70 Operating Permit** – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit:  $\geq 10$  tons per year of any toxic air pollutant;  $\geq 25$  tons of total toxic air pollutants; and  $\geq 100$  tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

**PM<sub>10</sub>** – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

**Potential to Emit (PTE)** – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

**Prevention of Significant Deterioration (PSD)** – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient

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Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO<sub>2</sub>) – An oxide of sulfur.

Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.